Creatine may offer brain boost for sleep-deprived workers, study finds

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- A German study found that a single high dose of creatine may improve cognitive performance during sleep deprivation.
- The research involved 15 participants and showed enhanced short-term memory, reaction time, and brain energy levels.
- Experts caution that the high dose used (25 grams for a 70kg person) is unsafe for regular use and requires medical guidance.

- Creatine helps regenerate ATP, the brain's energy source, supporting cognitive function during sleep loss.
- The findings could benefit shift workers, first responders, and others but require further research on safety and lower doses.

A new German study suggests that a single high dose of creatine—a supplement typically associated with athletic performance — could help offset the cognitive decline caused by sleepless nights.

The research, conducted by scientists at the Forschungszentrum Jülich, offers hope for shift workers, students, and others who rely on caffeine to power through long hours. However, experts caution that the high dose used in the study may not be safe for regular use, emphasizing the need for further research.

The study, published in *Scientific Reports*, found that a single dose of creatine improved cognitive performance and stabilized brain energy levels during sleep deprivation. While the results are promising, researchers warn against self-administering such high doses without medical guidance.

How creatine works in the brain

Creatine is a naturally occurring compound found in muscle and brain cells, where it plays a key role in energy production. It helps regenerate adenosine triphosphate (ATP), the molecule that powers cellular processes. During sleep deprivation, the brain's energy reserves are depleted, leading to impaired memory, slower reaction times, and reduced problem-solving abilities.

The German study involved 15 healthy participants aged 20 to 28 who were kept awake overnight for two sessions. During one session, participants received a high dose of creatine — 0.35 grams per kilogram of body weight, equivalent to about 25 grams for a 70-kilogram person. In the other session, they received a placebo. Cognitive tests and brain scans revealed that those who took creatine showed significant improvements in processing capacity, short-term memory, and reaction time.

"Creatine has a role in rapidly regenerating ATP, the primary energy source for cellular processes," explained Dr. Ryan S. Sultan, a *Columbia University* psychiatrist, in an email to *The Epoch Times*. "This boost in ATP supports better neuronal function and transmission of chemical signals between nerve cells, which are crucial for cognitive tasks."

While the findings are encouraging, researchers stress that the dose used in the study far exceeds the recommended daily intake of 3 to 5 grams for healthy individuals. Ali Gordji-Nejad, the study's coordinator, told *The Epoch Times* that the high dose was not intended for regular use.

Dr. Justin Houman, a urologist at Cedars-Sinai Medical Center, noted that while creatine is generally safe for healthy people, high doses can cause side effects such as water retention, gastrointestinal discomfort, and potential kidney strain. "For most people, creatine is considered safe when used appropriately, but there are a few considerations, particularly for individuals with preexisting conditions," he said.

Potential applications and future research

The study's findings could have significant implications for professions that require high cognitive performance despite sleep deprivation, such as healthcare workers, firefighters, and military personnel. However, experts agree that more research is needed to determine whether lower doses of creatine can provide similar benefits and whether the supplement is safe for long-term use.

"This is some really cool data that shows creatine works," said Scott Forbes, PhD, a researcher at *Brandon University* in Canada, in an interview with *Medical News Today*. "More research is needed, but these findings could be highly applicable to first responders—firefighters, military, police—healthcare workers, pilots, or athletes who may have trouble sleeping yet need to have their brains functioning at a high level."

As sleep deprivation continues to plague millions worldwide, creatine may emerge as a natural alternative to caffeine for boosting cognitive performance during long nights. While the study's results are promising, experts urge caution and emphasize the need for further research to ensure safety and efficacy. For now, the best remedy for sleep deprivation remains a good night's rest — but for those times when sleep isn't an option, creatine could offer a helping hand.

Sources for this article include:

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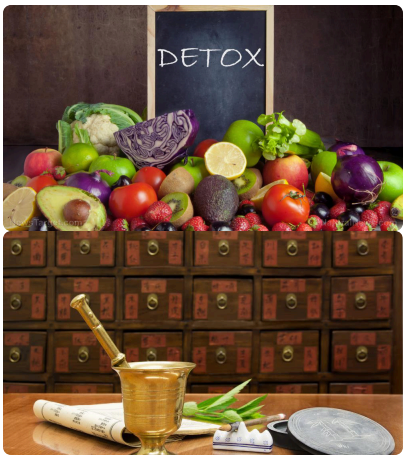

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